

Cooling	 
Tolerance	e8
Coating	TiSiN- α

HA

HSC

HPC

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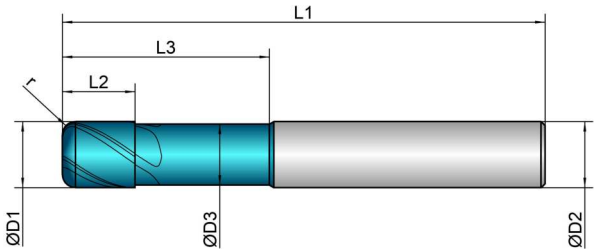




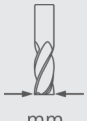
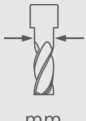
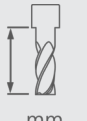
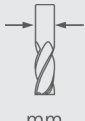
Expert

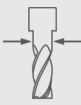
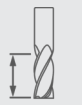
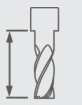
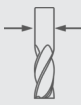


HA K202223



Steel			Hardened steel				Stainless steel (VA)	Castings	Non-ferrous materials				Inconel	Abrasive material		Titanium
< 850 N/mm	< 1100 N/mm	< 1400 N/mm	< 55 HRC	< 60 HRC	< 67 HRC	< 70 HRC			Al	Copper	Mg	Plastics		CFRP / GFRP	Graphite	
		210	175	155	120	90										

K202223	D1  mm ø	D3  mm ø	L2  mm	L3  mm	L1  mm	D2  mm ø	z  #	r  mm	 °
1/0,1	1.0	0.85	1.5	10.0	50.0	3.0	4	0.10	35
1/0,2	1.0	0.85	1.5	10.0	50.0	3.0	4	0.20	35
2/0,2	2.0	1.8	2.5	12.0	50.0	3.0	4	0.20	35
2/0,3	2.0	1.8	2.5	12.0	50.0	3.0	4	0.30	35
2/0,5	2.0	1.8	2.5	12.0	50.0	3.0	4	0.50	35
3/0,25	3.0	2.7	4.0	14.0	50.0	3.0	4	0.25	35
3/0,3	3.0	2.7	4.0	14.0	50.0	3.0	4	0.30	35
3/0,5	3.0	2.7	4.0	14.0	50.0	3.0	4	0.50	35
3/1	3.0	2.7	4.0	14.0	50.0	3.0	4	1.00	35
4/0,2	4.0	3.7	5.0	16.0	50.0	4.0	4	0.20	35
4/0,25	4.0	3.7	5.0	16.0	50.0	4.0	4	0.25	35
4/0,4	4.0	3.7	5.0	16.0	50.0	4.0	4	0.40	35
4/0,5	4.0	3.7	5.0	16.0	50.0	4.0	4	0.50	35
4/1	4.0	3.7	5.0	16.0	50.0	4.0	4	1.00	35
5/0,25	5.0	4.6	6.0	18.0	54.0	5.0	4	0.25	35

									
K202223	mm ø	mm ø	mm	mm	mm	mm ø	#	mm	°
5/0,5	5.0	4.6	6.0	18.0	54.0	5.0	4	0.50	35
5/1	5.0	4.6	6.0	18.0	54.0	5.0	4	1.00	35
6/0,25	6.0	5.5	7.0	21.0	58.0	6.0	4	0.25	35
6/0,5	6.0	5.5	7.0	21.0	58.0	6.0	4	0.50	35
6/0,8	6.0	5.5	7.0	21.0	58.0	6.0	4	0.80	35
6/1	6.0	5.5	7.0	21.0	58.0	6.0	4	1.00	35
6/1,5	6.0	5.5	7.0	21.0	58.0	6.0	4	1.50	35
6/2	6.0	5.5	7.0	21.0	58.0	6.0	4	2.00	35
8/0,25	8.0	7.4	9.0	27.0	64.0	8.0	4	0.25	35
8/0,5	8.0	7.4	9.0	27.0	64.0	8.0	4	0.50	35
8/0,8	8.0	7.4	9.0	27.0	64.0	8.0	4	0.80	35
8/1	8.0	7.4	9.0	27.0	64.0	8.0	4	1.00	35
8/1,5	8.0	7.4	9.0	27.0	64.0	8.0	4	1.50	35
8/2	8.0	7.4	9.0	27.0	64.0	8.0	4	2.00	35
8/2,5	8.0	7.4	9.0	27.0	64.0	8.0	4	2.50	35
8/3	8.0	7.4	9.0	27.0	64.0	8.0	4	3.00	35
10/0,25	10.0	9.2	11.0	32.0	73.0	10.0	4	0.25	35
10/0,5	10.0	9.2	11.0	32.0	73.0	10.0	4	0.50	35
10/0,8	10.0	9.2	11.0	32.0	73.0	10.0	4	0.80	35
10/1	10.0	9.2	11.0	32.0	73.0	10.0	4	1.00	35
10/1,5	10.0	9.2	11.0	32.0	73.0	10.0	4	1.50	35
10/2	10.0	9.2	11.0	32.0	73.0	10.0	4	2.00	35
10/3	10.0	9.2	11.0	32.0	73.0	10.0	4	3.00	35
10/3,5	10.0	9.2	11.0	32.0	73.0	10.0	4	3.50	35
12/0,5	12.0	9.2	12.0	38.0	84.0	12.0	4	0.50	35
12/1	12.0	9.2	12.0	38.0	84.0	12.0	4	1.00	35
12/1,5	12.0	9.2	12.0	38.0	84.0	12.0	4	1.50	35
12/2	12.0	9.2	12.0	38.0	84.0	12.0	4	2.00	35
12/3	12.0	9.2	12.0	38.0	84.0	12.0	4	3.00	35
16/1	16.0	15.0	16.0	44.0	93.0	16.0	4	1.00	35
16/2	16.0	15.0	16.0	44.0	93.0	16.0	4	2.00	35
16/3	16.0	15.0	16.0	44.0	93.0	16.0	4	3.00	35
20/1	20.0	18.5	20.0	55.0	104.0	20.0	4	1.00	35
20/2,5	20.0	18.5	20.0	55.0	104.0	20.0	4	2.50	35

Kühlung

Toleranz

±8

Beschichtung

TiSiN-α

HA

HSC

HPC



Werkstoff / Material	Festigkeit / strength (N/mm²)	Vc m/min	Ø 0,1 - 2		Ø 3 - 4		Ø 5		Ø 6		Ø 8		Ø 10		Ø 12		Ø 16		Ø 20	
			ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD	ae= 0,3xD	ae= 0,05xD
			ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD	ap= L2_max	ap= 0,05xD
			fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)	fz (mm/Z)
Stahl / Steel	< 850																			
Stahl / Steel	< 1100																			
Stahl / Steel	< 1400	210	0,018	0,01	0,025	0,017	0,04	0,022	0,04	0,022	0,05	0,028	0,057	0,033	0,065	0,04	0,08	0,055	0,08	0,06
Gehärteter Stahl / Hardness Steel	< 55HRC	175	0,008	0,006	0,025	0,022	0,04	0,03	0,06	0,05	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,09	0,1	0,09
Gehärteter Stahl / Hardness Steel	< 60HRC	155	0,008	0,006	0,025	0,022	0,04	0,03	0,06	0,05	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,09	0,1	0,09
Gehärteter Stahl / Hardness Steel	< 67HRC	120	0,005	0,004	0,02	0,018	0,035	0,025	0,055	0,045	0,065	0,055	0,075	0,065	0,085	0,075	0,095	0,085	0,095	0,085
Gehärteter Stahl / Hardness Steel	≤ 70HRC	90	0,004	0,003	0,017	0,015	0,03	0,02	0,05	0,04	0,06	0,05	0,07	0,06	0,08	0,07	0,09	0,08	0,09	0,08
INOX	< 700																			
INOX	< 850																			
Guss / Castings																				
Aluminium / Al																				
Kupfer / Cooper																				
Kunststoffe / Plastics																				
Inconel																				
Titan / Titanium																				
Grafit / Graphite																				
GFK / CFK																				

Bitte beachten, hierbei handelt es sich lediglich um Richtwerte! / Caution, these are only guide values!